A2 cont.

36. (Amended) The method of claim 1, wherein the oligonucleotide primer is attached to a substrate.

REMARKS

By this amendment, claims 34, 44, and 45 have been cancelled without prejudice regarding prosecution at a later date, for example in another application. Claims 35 and 36 are amended. No new claims are added. Therefore, claims 1-33 and 35-43 are now pending.

In addition, the priority claim was added to the specification by this amendment.

Claims 35 and 36 were amended to depend from claim 1. Support for this amendment can be found in the specification on page 4, lines 35-39; page 11, line 34 – page 12 line 20; page 16, lines 22-28; and FIGS. 1B-1D.

If there are any questions regarding this amendment, please telephone the undersigned at the telephone number below.

Respectfully submitted,

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Marked-up Version of Amended Claims and Specification
Pursuant to 37 C.F.R. §§ 1.121(b)-(c)

In the specification, page 1, line 2 under the title, insert the following paragraph:

PRIORITY CLAIM

This is a § 371 national stage of PCT/US00/23736, filed August 20, 2000, which was published in English under PCT Article 21(2), which in turn claims the benefit of U.S. Provisional Application No: 60/151,580, filed August 30, 1999.

In the claims:

34. (Cancel) [A method of sequencing a sample nucleic acid, comprising:

attaching a polymerase to a substrate;

allowing a sample nucleic acid and an annealed oligonucleotide to bind to the polymerase in the presence of nucleotides for incorporation into a complementary nucleic acid, wherein the polymerase and nucleotides are cooperatively labeled with donor and acceptor fluorophores that emit a unique signal when a particular nucleotide is incorporated into the complementary nucleic acid;

detecting a sequential series of the unique signals as the nucleotides are sequentially added to the complementary nucleic acid; and

converting the series of the unique signals into a nucleic acid sequence.]

35. (Amended) [A] The method of [sequencing a sample nucleic acid, comprising:] claim 1 wherein the

[attaching a] sample nucleic acid is attached to a substrate[;

adding an oligonucleotide primer;

allowing the oligonucleotide primer to anneal to the attached sample nucleic acid;

adding a polymerase in the presence of nucleotides for incorporation into a complementary nucleic acid wherein the polymerase and nucleotides are cooperatively labeled with donor and acceptor fluorophores that emit a unique signal when a particular nucleotide is incorporated into the complementary nucleic acid;

allowing the polymerase to bind to the nucleic acid;

detecting a sequential series of the unique signals as the nucleotides are sequentially added to the complementary nucleic acid; and

converting the series of the unique signals into a nucleic acid sequence].

36. (Amended) The [A] method of [sequencing a sample nucleic acid, comprising:] claim 1, wherein the

[attaching an] oligonucleotide primer is attached to a substrate[;

adding a sample nucleic acid to be sequenced;

allowing the oligonucleotide primer to anneal to the sample nucleic acid;

adding a polymerase in the presence of nucleotides for incorporation into a complementary nucleic acid wherein the polymerase and nucleotides are cooperatively labeled with donor and acceptor fluorophores that emit a unique signal when a particular nucleotide is incorporated into the complementary nucleic acid;

allowing the polymerase to bind to the nucleic acid;

detecting a sequential series of the unique signals as the nucleotides are sequentially added to the complementary nucleic acid; and

converting the series of the unique signals into a nucleic acid sequence].

44. (Cancel) [A device for sequencing a nucleic acid molecule comprising:

a glass microscope slide to which an oligonucleotide primer, sample nucleic acid, or polymerase is attached, wherein the polymerase includes a donor fluorophore;

a laser positioned to stimulate the donor fluorophore with laser light at a first wavelength range which induces the donor fluorophore to emit a signal at a second wavelength range that stimulates an acceptor flurorophore but not the donor fluorophore, and the signal emitted by the acceptor fluorophore is unique to each type of nucleotide, further wherein the first wavelength does not stimulate the acceptor fluorophore to emit the signal characteristic of the nucleotide;

a microscope objective positioned for viewing a sequence of signals emitted by the acceptor fluorophores as nucleotides are added to a sequence by the polymerase, wherein the sequence of signals corresponds to a nucleic acid sequence;

a spectrophotometer that converts the sequence of signals into a series of spectrographic signals of the acceptor fluorophore;

a CCD camera for detecting the sequence of signals; and

a digital computer which converts the sequence of signals into the nucleic acid sequence.]

45. (Cancel) [A device for sequencing a nucleic acid molecule comprising:

a glass microscope slide to which a polymerase is attached, wherein the polymerase includes a donor fluorophore;

a laser positioned to stimulate the donor fluorophore with laser light at a first wavelength range which induces the donor fluorophore to emit a signal at a second wavelength range that stimulates an acceptor fluorophore but not the donor fluorophore, and the signal emitted by the acceptor fluorophore is unique to each type of nucleotide, further wherein the first wavelength does not stimulate the acceptor fluorophore to emit the signal characteristic of the nucleotide;

a microscope objective positioned for viewing a sequence of signals emitted by the acceptor fluorophores as nucleotides are added to a sequence by the polymerase, wherein the sequence of signals corresponds to a nucleic acid sequence;

a spectrophotometer that converts the sequence of signals into a series of spectrographic signals of the acceptor fluorophore;

a CCD camera for detecting the sequence of signals; and

a digital computer which converts the sequence of signals into the nucleic acid sequence.]